

Remarks

In view of the above amendments and the following remarks, reconsideration of the objection and rejection, and further examination are requested.

Claim 1 has been objected to as containing a minor informality. Claim 1 has been amended so as to address the informality. As a result, withdrawal of the objection to claim 1 is respectfully requested.

Further, claims 1-3 have been amended to make a number of editorial revisions thereto. These revisions have been made to place the claims in better U.S. form. None of these amendments have been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

Claims 1-3 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Inanaga (US 4,176,249) in view of Varla (US 6,373,956).

Claim 1 has been amended so as to further distinguish the present invention from the references relied upon in the rejection. As a result, the rejection is submitted to be inapplicable to the claims for the following reasons.

Claim 1 recites a speaker apparatus comprising, in part, a speaker unit including a main converter for converting an electrical signal into mechanical vibration; and a compensation converter fixed to a rear side of the main converter for converting an electrical signal into mechanical vibration, wherein the compensation converter is smaller and lighter than the main converter. One of the benefits of the present invention, as recited in claim 1, is that the compensation converter offsets the vibrations of the main converter such that the vibrations can be suppressed and deterioration in sound quality can be prevented. The combination of Inanaga and Varla fails to disclose or suggest the compensation converter being smaller and lighter than the main converter as recited in claim 1.

Inanaga discloses a speaker device including a first magnetic circuit 5A and a second magnetic circuit 5B connected to each other. Both the first and second magnetic circuits 5A and 5B are located in an enclosure 10. The first magnetic circuit 5A is attached to a vibratory member 8, a frame 9 and a baffle plate 11 for the generation of sound. The second magnetic circuit 5B is attached to a massive member 12 and is adapted to vibrate in a manner so as to oppose the vibrations of the first magnetic circuit 5A. Therefore, the vibrations of the second

magnetic circuit 5B cancel out the vibrations of the first magnetic circuit 5A. (See column 2, line 65 – column 4, line 23 and Figure 1).

While Inanaga does disclose that the magnetic circuit 5B cancels out the vibrations of the first magnetic circuit 5A, Inanaga fails to disclose or suggest that the second magnetic circuit 5B is smaller and lighter than the first magnetic circuit 5A. As a result, Varla must disclose or suggest this feature of claim 1 in order for the combination of Inanaga and Varla to render claim 1 obvious.

Regarding Varla, it discloses a loudspeaker having a driver unit 6 including a magnetic circuit 7, a radiating element 5, a frame 4, and an air displacing mechanism 8. The loudspeaker also includes one or more masses 1 that are connected to the magnetic circuit 7 or the frame 4 by attachments with elasticities 3 so as to reduce the amount of vibration of the loudspeaker. The masses 1 and elasticities 3 are selected such that they will resonate with the magnetic circuit 7 at frequencies that can be chosen so as to coincide with the resonant frequency of the magnetic circuit-frame system. During this selection process, the mass 1 is selected such that it has a weight that is approximately equal to the weight of the magnetic circuit 7 to determine the resonant frequency. Then, a mass 1, which has a weight of the same order of magnitude as the magnetic circuit 7, and the elasticities 3 are selected to reduce the vibration. In this way, it is possible to adjust and control the efficiency and the effective frequency range of the mechanical vibration reduction. (See column 3, line 28 – column 4, line 20; column 5, line 52 – column 6, line 18; and Figures 1-3).

In the rejection, it is indicated that the disclosure in Varla of the use of one or more masses 1 of suitable weight to perform vibration damping illustrates that it would have been obvious to one of ordinary skill in the art to modify the second magnetic circuit 5B in Inanaga to be smaller and lighter than the first magnetic circuit 5A. However, it is believed apparent that such a modification of the second magnetic circuit 5B is not suggested by the disclosure of Varla.

As discussed above, Varla discloses a loudspeaker where various masses 1 and elasticities 3 can be combined so as to reduce the amount of vibration of the loudspeaker. On the other hand, Inanaga relies on the second magnetic circuit 5B to generate vibrations to cancel out the vibrations created by the first magnetic circuit 5A, and thereby, reduce the vibrations of the speaker device as a whole. It is apparent that the references utilize completely different

techniques for reducing vibration. Additionally, Varla does not disclose or suggest the intentional use of masses 1 that are smaller and lighter than the magnetic circuit 7. Instead, Varla discloses that the weight of the masses 1 are of the same order of magnitude as that of the magnetic circuit 7, and that the masses 1 are selected solely based on their damping effect in conjunction with the elasticities 3. Therefore, it would not have been obvious to one of ordinary skill in the art to reduce the size and weight of the second magnetic circuit 5B as compared to that of the first magnetic circuit 5A in view of the masses 1 of different weights in Varla because the two vibration reduction methods operate based on different principles and nothing disclosed or suggested by Varla leads to the modification of the second magnetic circuit 5B as suggested in the rejection. As a result, the combination of Inanaga and Varla is improper and fails to render the present invention as recited in claim 1 obvious.

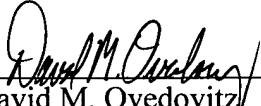
Because of the above-mentioned distinctions, it is believed clear that claims 1-3 are allowable over the references relied upon in the rejection. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1-3. Therefore, it is submitted that claims 1-3 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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